

Amoebic liver abscess leading to inferior vena caval thrombus formation with its right atrial extension

Pranay Pawar, Renji Mathew, Joshua Victor,
Galvin Singh Dhaliwal, Navneet Kumar Chaudhry

Department of Surgery,
Christian Medical College and Hospital, Ludhiana, Punjab, India.

ABSTRACT Amoebiasis is a common protozoal infection and hepatic involvement occurs in 10% of cases. Vascular complications of amoebic liver abscess are very rare and are potentially life-threatening. We report successful management of a patient with multiple amoebic abscesses complicated by vena caval thrombosis extending to the right atrium.

Key words: Amoebic Liver Abscess, Inferior Vena Cava thrombus, Right atrial thrombus, tropical diseases

Abbreviations: CT - computed tomography; IVC - inferior vena cava

Introduction

Amoebiasis is a common parasitic infection in tropical areas. Hepatic involvement occurs in 10% of the cases, and its complications include rupture into pleural, pericardial and peritoneal cavity.[1] Rarely, vascular complications like IVC thrombosis can occur. Only few such cases have been reported in literature

Case report

A 35-year-old male presented with pain in the right hypochondrium, fever and loss of appetite of 10 days duration. On examination he was febrile. His pulse rate was 120/min and blood pressure was 110/70 mm Hg. Tenderness of the right hypochondrium and minimal distension of abdomen were noted during physical examination. His hemoglobin was 13.1 gm/dl and white blood cell count was 21,100/mm³. His liver function tests showed a total bilirubin of 3.3 mg/dl with a direct bilirubin of 2.6 mg/dl, aspartate aminotransferase and alanine aminotransferase were 185 and 236 U/l respectively and the alkaline phosphatase was 628 IU/l. Renal function tests were normal.

His chest x-ray was normal. Ultrasound abdomen showed a heterogeneous hypoechoic space occupying lesion of 450 ml volume in segments IV,V and VIII of the right lobe

of liver. Another similar lesion of 40 ml volume was seen in the segment II of the left lobe. Sonographic features were suggestive of amoebic liver abscess. Doppler showed absence of blood flow in the intrahepatic segment of IVC suggesting a thrombus. ELISA test for amoebic antibodies was positive. Contrast enhanced computed tomographic scan further showed that the abscess was compressing the intrahepatic IVC; there was also a hypodense non-enhancing thrombus within the IVC that extends upto the right atrium.

Under the cover of broad-spectrum antibiotics and metronidazole, ultrasound guided pigtail drainage of the abscesses was done. Follow-up ultrasonography showed decrease in the volume of abscess cavity. The patient showed gradual improvement and had no further episodes of fever or abdominal pain. Following drainage of the abscess, he was started on warfarin 3 mg once daily and enoxaparin 40 mg twice daily for the IVC thrombus. Anticoagulants were continued for 4 weeks and subsequent ultrasounds revealed normal color, caliber and flow rate in the intrahepatic IVC signifying resolution of the IVC thrombus. The patient was followed up regularly for 3 months in the outpatient department and was doing well.

DISCUSSION

Amoebiasis occurs in 10% of the world's population and is more prevalent in tropical and subtropical regions. Human beings are principal hosts as well as reservoirs. They get infected by ingestion of food and water contaminated by amoebic cysts. Amoebic liver abscess is the most common extra-intestinal manifestation of *Entamoeba histolytica* infection and is associated with significant morbidity and mortality.[2]

Address for correspondence

Dr Renji Mathew, Resident, Department of Surgery, Christian Medical College and Hospital, Ludhiana-141008, Punjab, India
Email: drrenjimathew@gmail.com
Mobile phone 9855397251

Received: 5 July 2016

Accepted: 3 February 2017



Fig 1: Contrast enhanced computed tomography showing abscess cavity and extrinsic compression of IVC.

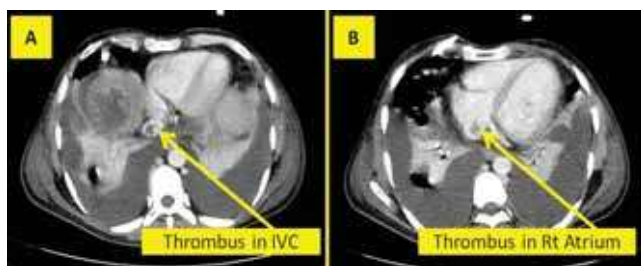


Fig 2: Computed tomography showing (A) thrombus in inferior vena cava and (B) thrombus extending into the right atrium.

The complication rate of amoebic liver abscesses is reported to be about 10%. Amoebic abscess may rupture into pleura, pericardium, peritoneum, bile ducts and blood vessels (septicemia).[3] Although rare, thrombosis of the hepatic segment of inferior vena cava, also known as obliterative hepatocavopathy has been reported and it can lead to fatal pulmonary thromboembolism. Exact pathogenesis of IVC thrombosis is uncertain.[4] Some of the proposed hypotheses are: (a) Extension of inflammatory process causes injury to the intima of the hepatic vein or IVC; (b) Mechanical compression of the IVC causing alteration in flow dynamics leading to turbulence and stasis; (c) Rupture of the abscess in the IVC provoking intravascular thrombosis; (d) cytokines released from amoebic liver abscess can potentially predispose to pro-thrombotic state.[4]

The management of amoebic liver abscess with IVC thrombosis is antibiotics and drainage of the abscess; but in a few cases anticoagulation therapy may be required. Extension of the thrombus into the right atrium, as it was

in our case, is very rare and only a few reports have been published.[5,6] The optimal treatment of this complication is unknown. Thrombolytic therapy has been described and the most accepted indication is proven pulmonary embolism with cardiogenic shock. Cardiopulmonary bypass and deep hypothermic circulatory arrest has also been used to facilitate thrombus removal by right atrial thrombectomy. [5,6]

Vascular complications of amoebic liver abscess are very rare and potentially life threatening. Prompt therapy includes drainage of the abscess and anti-amoebic drugs. Aggressive approach such as right atrial thrombectomy may be required in some instances.

Conflicts of interest: Nil

Ethics: Patient confidentiality and safety were protected

Funding: Self funded

Guarantor: Dr. Renji Mathew will act as guarantor on behalf of all co-authors

References

1. Stanley SL. Amoebiasis. *Lancet* 2003; 361: 1025–1034.
2. Sarda AK, Mittal R, Basra BK, et al. Three cases of amoebic liver abscess causing inferior vena cava obstruction, with a review of the literature. *Korean J Hepatol* 2011; 17: 71-75.
3. Yang DM, Kim HN, Kang JH, et al. Complications of pyogenic hepatic abscess: computed tomography and clinical features. *J Comput Assist Tomogr* 2004; 28: 311–317.
4. Siddiqui M, Gupta A, Kazmi A, et al. Inferior vena caval and right atrial thrombus complicating amoebic liver abscess. *Interact Cardiovasc Thorac Surg* 2013; 17: 872-874.
5. Chartier L, Bera J, Delomez M, et al. Free-floating thrombi in the right heart: diagnosis, management, and prognostic indexes in 38 consecutive patients. *Circulation* 1999; 99: 2779 - 2283.
6. Chapoutot L, Nazeyrollas P, Metz D, et al. Floating right heart thrombi and pulmonary embolism: diagnosis, outcome and therapeutic management. *Cardiology* 1996; 87: 169 - 174.

